5.0 OTHER REQUIRED CONSIDERATIONS

5.1 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) require consideration of "irreversible and irretrievable commitments of resources" that would result from the Project or its alternatives. However, CEQ has not defined each of these terms. For the purposes of this analysis, the term "irreversible commitment" has been interpreted to mean material, non-material, and financial resources consumed (e.g., minerals, soil productivity) that cannot be replaced. For example, the use of natural gas for electricity generation represents an irreversible commitment of natural gas for that purpose. An "irretrievable commitment" of resources refers to the loss of production, harvest, or use of natural resources, that occur over the life of the proposed Project. The amount of production foregone is irretrievable, but the action can be reversed. For example, some or all of the grazing acreage in the plant site is irretrievably lost while the area serves as a power plant. The productivity of the area for grazing is lost, but after the power plant use is finished, the plant could be removed, the site reclaimed, and grazing could resume.

For this Project, the Proposed Action and alternatives differ only in the route and location of the natural gas pipeline to the proposed power plant, and in the redundant communication systems for operation of the substation. Unless specific commitments of resources differ between the Proposed Action and Project alternatives, commitments of resources are discussed together. The resources examined correspond with the resources discussed in Section 3.0. Additional sections outline the resource commitments for construction activities and plant operations. For all resources, including construction materials and fuels, the No-Action alternative would result in no irreversible commitment of resources, and a small irretrievable commitment of soil, land use, vegetation, and grazing where the existing well pads and access road are located.

5.1.1 Air Resources

During power plant and pipeline construction, an increase of gas emissions including nitrogen oxide (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), and particulates (PM_{10}), and an increase of fugitive dust, is anticipated. Sources contributing to these increases include construction vehicles and equipment, as well as earth clearing/grading operations. Impacts to air resources are not expected to be significant, but degradation to air quality that would occur during construction would be irretrievable. Air quality impacts associated primarily with earth moving activities and equipment would be reversible upon completion of Project construction. Plant operations would result in emissions of PM_{10}, NO_x, SO_2, and formaldehyde for the life of the Project. Pipeline operation may also result in irretrievable changes in regional haze and nitrogen and sulfur deposition. Minor visibility impairment is expected due to NO_x, SO_2, and particulates represents an irretrievable commitment over the life of the Project. These air quality effects would be reversible following the life of the Project.

5.1.2 Geology/Paleontology

There are no known areas of regional geological importance or mineral resource development potential that would be destroyed or made inaccessible by the proposed power plant and its associated facilities (e.g., evaporation ponds). There are no known paleontological resources that would be located along the proposed or alternative pipeline routes. Mitigation during construction would protect previously unidentified fossil localities. Therefore, the Proposed Action would result in no irretrievable or irreversible commitments of geological or paleontological resources.

5.1.3 Soils

Soils would potentially be lost through water and wind erosion as a result of the Proposed Action. Increased soil erosion may occur where vegetation is removed and the surface is disturbed during construction. Additionally, the compaction of soils, loss of topsoil, and mixing of topsoils and subsoils may inhibit natural revegetation, increasing potential soil erosion. Increased erosion may reduce the productivity of the soil. Though actions have been incorporated into the Proposed Action to reduce soil erosion, the loss of soil during construction and operation of the Project represents an irretrievable and irreversible commitment of resources.

5.1.4 Groundwater

Groundwater resources would be irreversibly and irretrievably committed as a part of the Proposed Action. Groundwater would be extracted from the lower aquifer at a maximum rate of 3,000 gallons per minute (gpm) for about 40 years. Most of this water would cycle through the plant and be lost to evaporation; the remaining cycled water would be discharged into an evaporation pond. A small percentage of pumped water would be used for agricultural activities. Only some water used for agricultural activities and flow augmentation could potentially recharge groundwater. Water consumed by plant operations and evaporation ponds represents an irretrievable commitment of groundwater resources. Though drawdown of the aquifers would be irretrievable over the life of the Project, the aquifers could recharge to its existing level over time and this commitment would be considered reversible. The Project is likely to affect Cofer Hot Spring whose flow would likely be reduced over the 40-year life of the Project. This reduction of flow to Cofer Hot Spring would also be irretrievable over the life of the Project, and until the aquifer is recharged.

5.1.5 Surface Water

Surface water quantity and quality could be affected as a result of the Proposed Action. Grading for the plant site and access road, as well as construction of the pipeline, may temporarily disturb surface water quality in immediately adjacent areas by increasing sedimentation and turbidity. The commitment of surface water resources represents an irretrievable loss; however, loss of these resources would be anticipated for only the life of the Project.

The reduction of flow to the Big Sandy River would be mitigated through the addition of other surface water sources. This is an irretrievable commitment of this water resource.

5.1.6 Floodplains

The Proposed Action may result in the irretrievable commitment of floodplain resources during pipeline construction depending upon the method of pipeline installation. If a directional drilling method is used for pipeline installation, there would be no effect on floodplain resources and no irretrievable commitment of resources would occur. However, if the trenching method is employed for pipeline installation, there would be some temporary irretrievable impacts on floodplains.

5.1.7 Land Use and Access

The Proposed Action would result in irretrievable commitments of land use resources. The proposed power plant, associated substation, evaporation ponds, agricultural activities, access road, and optical ground wire (OPGW) installation, would be located on 159 acres of predominantly grazing land. Land uses along the pipeline route may be temporarily or permanently disrupted, depending on the particular use and particular alignment. For example, structural land uses within the selected alignment would need to be relocated for the life of the Project, but grazing uses only need to be relocated during pipeline construction and until revegetation occurred. The changes to land use would be reversible over varying lengths of time, which represents an irretrievable commitment of land uses ranging from the construction period to the life of the Project.

5.1.8 Grazing Management

As described under land uses, lands currently used for grazing would be affected by the Proposed Action because these lands would be temporarily disturbed or would no longer be available for grazing over the life of the Project. Grazing range areas within the pipeline corridors would be reclaimed to restore nearly all forage production. Though all areas could be reclaimed for grazing, the loss of grazing land represents an irretrievable commitment of grazing resources.

5.1.9 Recreation, Wilderness, and Visual Resources

5.1.9.1 Recreation and Wilderness

Recreation and wilderness resources may experience some irretrievable impacts as a result of the Project. The temporary increased population from construction may utilize recreation and wilderness resources. Recreational resources could also be affected by the improved access to remote areas by the proposed access road. The road would allow increased use of off-highway vehicles in the landscape surrounding the proposed power plant site, potentially increasing disturbance and erosion. These effects resulting from the Proposed Action represent an irretrievable commitment of recreational and wilderness resources.

5.1.9.2 Visual Resources

Irreversible and irretrievable commitments of visual resources would result from construction of the proposed power plant, access road, agricultural development, and pipeline. The proposed power plant and facilities would permanently alter the existing terrain and vegetation, resulting in irreversible and irretrievable commitments of visual resources. The power plant and associated structures, vapor plumes, and lighting at night would alter views within the Big Sandy Valley for the life of the Project, and would therefore be considered an irretrievable commitment of resources.

5.1.10 Areas of Critical Environmental Concern

The pipeline along the transmission lines (Proposed Action and Alternative T gas pipeline corridor) would be routed to avoid the historical Carrow-Stephens Ranches altogether to avoid an irretrievable commitment of this resource. Since no other ACEC would be affected, there would be no irreversible or irretrievable commitment of resources.

5.1.11 Vegetation

Construction activities at the proposed power plant site and associated facilities, including the proposed access road and OPGW sites, would disturb approximately 159 acres of vegetation. Of the 159 acres, 24 acres would be temporarily disturbed and then reclaimed through regrading and revegetation. Pipeline construction along the proposed route would result in the disturbance of 399 acres within a 90-foot right-of-way and an additional 7 acres for extra workspace. Most of the area disturbed by construction of the pipeline would be reclaimed and revegetated, resulting in a permanent disturbance area of only about 48 acres. The loss of vegetation at the plant site and associated facility areas, along the access road, in the agricultural area, at the OPGW sites, and along the pipeline route would be anticipated to last for at least the life of the Project and would be considered an irretrievable commitment of biological resources.

5.1.12 Wetlands, Riparian Areas, and Waters of the United States

5.1.12.1 Wetlands and Riparian Areas

There should be no direct or indirect impacts on wetlands or riparian areas due to erosion and sedimentation at the plant site. Construction of the natural gas pipeline across the Big Sandy River (corridor segment R5) has the potential to temporarily disturb riparian areas, depending on the construction method employed. A trenching, installation, and backfill method would result in irretrievable impacts on a 50-foot-wide swath through this riparian area, while directional

drilling under the Big Sandy River and riparian zone would not have any substantial impacts on wetlands. The reduction in flow at Cofer Hot Spring would have the potential to impact the wetland at that location, and would be an irretrievable commitment of resources. Crossing the Big Sandy River in corridor segment T5 would not require disturbance to wetlands or riparian areas; no irretrievable commitment of resources would be anticipated.

The use of groundwater could affect flow in the Big Sandy River out of Granite Gorge. Measures are planned that would augment these flows and prevent the irretrievable commitment of resources.

5.1.12.2 Waters of the United States

Several ephemeral streams are located within or adjacent to the proposed power plant site and the associated substation and evaporation pond, as well as in the vicinity of four water production wells and three monitor wells. In addition, ephemeral streams cross the proposed agricultural area. The access road to the proposed power plant site and the optical ground wire would also cross ephemeral stream channels. Due to the extensive grading and recontouring, both an irreversible and irretrievable commitment of waters of the United States would occur.

The proposed pipeline route would cross 175 ephemeral stream channels; and the alternative pipeline route would cross 172 ephemeral stream channels. There would be temporary, irretrievable, affects on waters of the United States during construction of the gas pipeline. Recontouring and revegetation of wash areas would restore these areas, to the extent feasible, to preconstruction conditions.

5.1.13 Fisheries and Wildlife

Direct mortality of fossorial mammals and reptiles may occur during the construction of the proposed power plant and pipeline and installation of the communication facilities. Foraging and breeding activities of birds and other animals in proximity to the construction site may be temporarily interrupted. Small raptor species that nest in large trees or saguaros may experience irreversible nest failure due to the removal of saguaros and large trees for construction. Nesting raptors also may be affected by human activity near their nests during the breeding season. Construction of the proposed power plant may result in the direct mortality of the desert tortoise due to construction traffic. Destruction of burrows may result in displacement of tortoise. The increased construction traffic on the proposed access road may result in the mortality of small mammals and reptiles attempting to cross the road. These would be considered irreversible and irretrievable commitments of wildlife resources.

The pipeline route may result in direct short-term impacts on fisheries and wildlife as a result of construction activities adjacent to US 93. If the trenching method were used to install the underground pipeline, there would be several temporary impacts on aquatic habitats associated with the Big Sandy River resulting in a irretrievable commitment of fishery and wildlife resources.

The proposed evaporation ponds could provide a place where transient, migratory, or wintering waterbirds such as herons, ducks, and shorebirds could feed and rest. Heavy metal concentrations potentially could occur in the ponds, resulting in detrimental impacts on waterbirds. Due to the proximity of the evaporation ponds to the existing Mead-Phoenix and Mead-Liberty transmission lines, the possibility of birds striking transmission lines would be greater. Adverse effects of the evaporation ponds on wildlife would be considered an irretrievable commitment of wildlife resources, and any loss of migratory birds would be an irreversible impact.

5.1.14 Threatened, Endangered, Proposed, and Other Special Status Species

Several threatened, endangered, proposed, candidate, and other special status species may be affected as a result of the construction and

operation of the Proposed Action. Mitigation efforts would be made for each of these species to minimize irreversible and irretrievable impacts on that species. Species with the potential to be irreversibly or irretrievably impacted as a result of the construction and/or operation of the Proposed Action are discussed below.

5.1.14.1 Southwestern Willow Flycatcher

The southwestern willow flycatcher may experience some temporary disturbance of nesting habitat and breeding activities as a result of construction activities. Construction-generated noise and vegetation removal along the pipeline route could disrupt southwestern willow flycatcher habitat. As a result, the southwestern willow flycatcher population in the Project area may be irreversibly reduced. If boring was used to install the pipeline at the Big Sandy River (in corridor segment R5), removal of habitat resulting in potentially irreversible commitment of endangered species resources may be eliminated. The Alternative T gas pipeline corridor does not cross the Big Sandy River in an area of perennial water with associated riparian vegetation, so impacts on the southwestern willow flycatcher or its habitat would not be expected.

5.1.14.2 Bald Eagle

Irretrievable commitments of resources could occur from the installation of evaporation ponds, which may attract waterfowl, a potential food source for bald eagles. As a result of feeding on this waterfowl, eagles may consume heavy metals from the evaporation ponds. Also, the location of the ponds may increase the collision risk for bald eagles with transmission lines resulting in some eagle mortality. Loss of individual birds would be considered an irreversible impact.

Construction of the natural gas pipeline along corridor segment R5 would disrupt some riparian vegetation, but this disturbance would not significantly affect the abundance of bald eagle prey. Construction within corridor segment T5 would not impact any aquatic resources or riparian areas that might provide foraging areas for the bald eagle. Therefore, activities along the proposed or alternative natural gas pipeline routes would not result in additional resource commitments.

5.1.14.3 Bats

The proposed power plant, associated facilities, and pipeline would require permanent disturbance of about 229 acres of Sonoran desertscrub, which is foraging habitat for bats. Additionally, construction activities may generate noise and dust in or near bat habitat (e.g., bridges, culverts) that would temporarily affect bats. These effects would be considered an irretrievable commitment of resources that could affect bats.

Additionally, pesticides introduced into the Project area as a result of agricultural development on the Project site may have an adverse effect on bats. Depending on the long-term effects, this could result in an irreversible and irretrievable commitment of resources.

5.1.14.4 Other Special Status Species

Access road traffic potentially may be linked to increases in banded Gila monster and Sonoran desert tortoise mortality. Mortality of individuals would represent irretrievable commitments of special status species; sufficient mortality of these species could represent an irreversible commitment of special status species in the Project area. Arizona toad, lowland leopard frog, and desert skink wetland habitats may experience temporary impacts during pipeline installation across the Big Sandy River. This represents an irretrievable commitment of resources that may affect special status species.

The alternative gas pipeline route and the OPGW crosses the Big Sandy River at a point that is dry except during storm flow events (corridor segment T5). Only a narrow portion of stream bank would be disturbed from pipeline installation in this area; impacts on Sonoran

desert tortoises, the banded Gila monster, and other special status species as a result of construction activities are not expected to result in irretrievable or irreversible commitments of resources.

5.1.15 Cultural Resources

Construction of facilities at the proposed power plant site would destroy part of archaeological site AZ M:6:47 (ASM) situated around a spring at the southern edge of the proposed power plant site. The wetlands at the spring would be avoided, but the access road into the proposed power plant site would disturb part of the scatter of artifacts around the northern margins of the spring. This would constitute an irreversible commitment of cultural resources. Construction of the pipeline in any of the corridors may disturb other significant archeological sites or historic roads. Such impacts would be considered an irreversible commitment of cultural resources.

The presence of the power plant, pipeline, and associated facilities in the Big Sandy Valley represents an irreversible commitment of the traditional cultural landscape of the area.

5.1.16 Socioeconomics and Environmental Justice

Construction of the Project would require an irretrievable commitment of labor resources during the construction phase of the Project, which would subsequently trigger irretrievable commitments of housing, health care, fire protection, law enforcement, and transportation resources. Operation of the Project would also require an irretrievable commitment of labor resources and subsequently the other resources, but to a much lesser extent. No commitment of resources is anticipated to be associated with environmental justice issues.

5.1.17 Public Safety and Services

The proposed transmission interconnection, substation, and power plant would create electric and magnetic fields (EMF) within areas currently not subjected to fields. Because these exposures are in areas not accessible to the general population, and EMF levels would not exceed current levels of the existing transmission line, no commitment of public safety or services would occur.

The proposed power plant and pipeline construction would result in increased roadway traffic to the construction areas. Increased traffic would also be generated from the delivery of oversized and heavy equipment. The increased demand on transportation and public safety resources associated with the transportation routes (e.g., law enforcement) as a result of the increased traffic would represent a brief, but irretrievable, commitment of resources.

Caithness would provide all necessary utilities on site including security, fire suppression, water supply, wastewater disposal, and emergency medical care. This would ensure that there would be no temporary stresses on local public utilities during Project construction and operation; no commitment of public service resources would be anticipated.

5.1.18 Noise

Construction of the proposed plant, access road, wells, natural gas pipeline, and installation of the communication facilities would temporarily increase the ambient noise in the vicinity of the construction activity. Similarly, operation of the plant would increase the ambient noise near the power plant for the life of the Project. Noise impacts generated by construction of the plant and associated facilities, and along the natural gas pipeline route, would be an irretrievable commitment of resources, as would noise impacts generated by plant operations.

5.1.19 Construction Materials and Fuels

The construction of the proposed power plant would involve the use of aggregate materials. The use of construction materials represents an irreversible commitment of these resources. The following construction materials would be used:

- 15,600 cubic yards of concrete
- 4,400 cubic yards of sand
- 8,900 cubic yards of aggregate
- 18,000 cubic yards of backfill gravel
- 2,184,000 pounds of rebar

Additionally, natural gas would be burned by the project and fossil fuels would be burned by vehicles and equipment associated with construction activities. This represents an irreversible and irretrievable commitment of fossil fuel resources.

5.1.20 Plant Operations

The main resources consumed by operation of the Big Sandy Power Plant would be water and natural gas. Water resource commitments are discussed in Sections 5.1.4 and 5.1.5. The natural gas used over the life of the Project could not be replaced. Therefore, the natural gas resources that would be consumed by plant operations represents an irreversible and irretrievable commitment of resources.

Table 5-1 summarizes the irreversible and irretrievable commitment of resources.

5.2 SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY

This section discusses the trade-off between the local short-term use of the environment versus the potential long-term productivity. For purposes of this section, short-term is defined as the construction period of the Project, and long-term is defined as 40 years (the expected life of the proposed power plant).

CEQ regulations (Title 40 Code of Federal Regulations [CFR] Part 1502.16) stipulate that the environmental consequences section of an EIS include a description of:

> ". . .the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity."

Over the life of the proposed power plant, associated facilities, and pipeline, the construction phase would represent the period of greatest short-term impact on the environment. Construction would include the temporary disturbance of about 8 acres for the access road, 393 acres for the gas pipeline, 11 acres for the power plant and associated facilities, 10 acres for wells, and 5 acres for OPGW installation. About 136 acres would be permanently disturbed for the life of the Project and associated facilities, including 107 acres used for agricultural development. The access road would occupy approximately 13 acres, and the well sites and roads would permanently occupy 16 acres. Following the construction phase of the proposed Project, the land disturbed temporarily for pipeline installation would be reclaimed, to the extent feasible, to preconstruction conditions. However, a two-track would be maintained along the pipeline to provide inspection and maintenance access, resulting in long-term, or permanent, disturbance of about 48 acres along the pipeline.

Air Resources—Potential effects on air quality from the proposed power plant would be long term, but within state emission standards. Potential short-term impacts would result from the creation of fugitive dust and gaseous emissions from ground transportation vehicles and construction equipment.

Geology—No significant effects on geology/paleontology are expected in the short or long term as a result of the Project construction or operation.

Soils—Potential effects on soil productivity and loss through water and wind erosion would be both short term and long term, but could be minimized by use of erosion control measures (e.g., mulching, silt fences, watering) and revegetation following the construction phase.

Groundwater—Potential effects on groundwater resources, including draw down of the deepest

TABLE 5-1 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES			
Resource	Type of Commitment/ Reason for Commitment	Irreversible	Irretrievable
Air	Degradation of air quality/ Construction and operation	No	Yes
Geology	None	No	No
Soils	Soil loss through water and wind erosion/ Construction and operation	Yes	Yes
Groundwater	Consumptive uses/ Construction and operation	No	Yes
Surface Water	Operation	No	Yes
Floodplains	Disturbance within floodplains/ Construction activities	No	Yes
Land Use and Access	Designation of new land uses/ Construction and operation	No	Yes
Grazing Management	Reduced land and water allotments; Threatened and endangered species habitat location/ Construction and operation	No	Yes
Recreation, Wilderness, and Visual Resources	Increased access for power plant; Degradation of natural scenic quality/ Construction and operation	Yes	Yes
Areas of Critical Concern	Disturbance of archaeological or historic resources	No	No
Vegetation	Disturbance and/or loss of vegetation and habitat/ Construction and operation	No	Yes
Wetlands, Riparian Areas, and "Waters of the U.S."	Disturbance of ephemeral streams/loss of wetland area Construction and operation	Yes	Yes
Fisheries and Wildlife	Disturbance and/or loss of wildlife species, including migratory birds/ Construction and operation	Yes	Yes
Threatened and Endangered Species	Disturbance and/or loss of wildlife species/ Construction and operation	Yes	Yes
Cultural Resources	Destruction of archaeological site/loss of traditional cultural landscape Construction activities	Yes	Yes
Socioeconomics and Environmental Justice	Increased regional and local employment and revenues/ Construction and operation	No	Yes
Public Safety and Services	Increased transmission line loading; Increased traffic/ Construction and operation	No	Yes
Noise	Construction and operation	No	Yes
Construction Materials	15,600 Concrete (cubic yards) 4,400 Sand (cubic yards) 8,900 Aggregate (cubic yards) 18,000 Backfill Gravel (cubic yards) 2,184,000Rebar (lbs)	Yes	No
Consumed Materials	Natural Gas and other Fossil Fuels	Yes	Yes

aquifer, would be long term, but the potential exists for aquifer recharge. During the life of the Project, water vapor would be added to the atmosphere from the evaporation of water in the plant cooling system.

Surface Water—Surface water resources would potentially be affected over the long term. The impacts to surface water would include the reduced flow of the outflow of Big Sandy River. Caithness proposes to augment flows annually to mitigate decreases in surface water flow.

Floodplains—Floodplains would experience short-term impacts associated with the construction of the natural gas pipeline. The pipeline would be buried 4 to 5 feet deep; no long-term impacts to floodplains would be anticipated. Additionally, if a directional drilling method is used for pipeline installation, there would be no short-term or long-term impacts on floodplains.

Land Use and Access—Construction and operation of the proposed power plant and access road would modify existing land uses at the plant site and in nearby areas. Planned land uses would generally not be affected, except in future residential areas that would need to account for the natural gas pipeline. Access is not anticipated to significantly change as a result of the Project. Land use changes would be considered long-term effects.

Grazing Management—Potential effects on grazing management would occur over the short term and long term. Losses of immediate grazing areas as a result of the pipeline and access roads would be short-term impacts in areas where reclamation and revegetation could occur. In areas of permanent disturbance (e.g., plant site), losses of grazing area would be considered a long-term impact.

Recreation, Wilderness, and Visual Resources—Recreation and visual resources would be impacted over the short and long term. Long-term impacts to recreational resources could occur as a result of increased accessibility to currently inaccessible areas due to the construction of new access roads, which could result in adverse effects on various resources including vegetation and wildlife resources. Though downward lighting, painting the power plant facilities to blend in with the natural environment, and revegetation would minimize impacts to visual resources from plant facilities, the potential impacts to visual resources would occur over the long term. Short-term impacts to visual resources would be anticipated from construction of the pipeline. Wilderness is not anticipated to be affected in the short or long term.

Areas of Critical Environmental Concern—No disturbance to historical elements of the Carrow-Stephens Ranches ACEC would occur if the ACEC is avoided.

Vegetation—Vegetation removed at the plant site and associated facilities, in the agricultural area, and along the access road would be considered a long-term impact. Vegetation removed within the pipeline corridor would be considered a short-term impact, where reclamation and revegetation would occur following pipeline installation (except along the two-track maintenance road).

Wetlands, Riparian Areas, and Waters of the United States—Potential effects on wetlands, riparian areas, and waters of the United States would be both short and long term. There is one wetland within the proposed power plant site, but it will not be disturbed. The wetland associated with Cofer Hot Spring would be affected until the aquifer recharges. Depending on the construction method employed, construction of the natural gas pipeline across the Big Sandy River may temporarily disturb wetlands. Several ephemeral streams, which are considered waters of the United States are located within the proposed power plant, substation, evaporation ponds, and well site areas. These streams would incur long-term impacts. Ephemeral streams crossed by the

proposed and alternative pipeline routes and access road would incur short-term impacts as part of construction activities.

Fisheries and Wildlife—Effects on fisheries and wildlife would be long term as a result of the proposed power plant, access road, and pipeline construction and operation. Fisheries would be potentially affected by lowered water levels in the Big Sandy River. Wildlife could be potentially affected over the long-term by increased traffic and noise on the access road. Though heavy metal concentrations in water and biota present in the evaporation ponds would be monitored, and wildlife use of the ponds would be stopped if heavy metal concentrations reach levels known to be toxic to waterfowl, the birds could be subject to long-term impacts from potentially heavy metal-contaminated food sources in the evaporation ponds.

Threatened, Endangered, Proposed, Candidate, and Other Special Status Species—Effects on threatened, endangered, proposed, candidate, and other special status species may be short- and long-term as a result of the construction and operation of the Proposed Action. The southwestern willow flycatcher may experience temporary disturbance of nesting habitat and breeding activities as a result of construction noise. The bald eagle may be impacted by heavy metal-contaminated food sources and collisions with transmission lines. In addition, special status species may experience temporary impacts due to pipeline installation and construction across the Big Sandy River and in wetland habitats.

Cultural Resources—Any disturbance or destruction of cultural resources would be long term.

Socioeconomics—Local economies would be expected to experience both short-term and long-term benefits as a result of the proposed power plant construction and operation. Power plant construction, operation, and maintenance would provide local and regional residents with increased employment opportunities. Impacts to the local workforce and housing would be short term when considering construction employees, and long term for the permanent plant employees.

Public Safety and Services—Effects on public safety and services are expected to be temporary, as a result of increased traffic due to construction activities. No substantial increased exposure to EMF is anticipated as a result of the proposed Project.

Noise—Noise impacts associated with construction activities would be considered short-term. Increases to the ambient noise level within close proximity of the plant would be considered long-term impacts.

In general, most resources within the natural, human, and cultural environments would experience short-term impacts, principally from construction activities, though some resources would experience effects on long-term productivity. The Proposed Action would help meet long-term power demands of existing population areas, across the western United States.

5.3 INDIAN TRUST ASSETS

Federally recognized Indian tribes are domestic dependent nations, and the relationship between the Federal government and those tribes is characterized as one of guardian to ward. In that guardian role, the Federal government is obligated to protect tribal interests, a duty that is referred to as trust responsibility. This trust doctrine is defined through treaties, laws, executive orders, judicial decisions, and agreements.

The *Bureau of Land Management* (BLM) *Manual* (512 DM 2), in accordance with Secretarial Order 3175 (*Departmental Responsibilities for Indian Trust Resources,* dated 8 November 1993) requires the BLM to explicitly address potential impacts on Indian trust resources in planning and decision documents. The Department of Energy (DOE) *American Indian & Alaska Native Tribal Government Policy* states that the DOE must be

diligent in fulfilling its Federal trust obligations to American Indian governments. Western Area Power Administration (Western), as an agency within DOE, is obligated to carry out this policy.

Indian trust resources include money, land, and other assets held by the Federal government in trust, or that are restricted against alienation for Indian tribes or individual Indians. Trust resources also include natural resources, either on or off Indian lands, retained by, or reserved by or for Indian tribes through treaties, statutes, judicial decisions, and executive orders, and are protected by a fiduciary obligation on the part of the United States. The DOE also interprets trust responsibilities as including interaction with tribal governments with regard to impacts of DOE programs, policies, and regulations to protect American Indian traditional and cultural life ways.

Indian trust responsibility commonly is thought of as encompassing the following three areas:

1. protection of trust land, assets, and resources
2. protection of tribal sovereignty and self-government
3. provision of services

Protection of Trust Land, Assets, and Resources—The Big Sandy Energy Project entails a decision by Western in response to an application for an interconnection to an electrical transmission line, and a BLM decision regarding an application for rights-of-way across public land. The Project does not involve broad Western or BLM programs, policies, and regulations that could affect Indian trust assets. However, both agencies have worked to implement their agency policies to explicitly consider potential effects that the proposed Big Sandy Energy Project might have on Indian trust assets.

The Hualapai Tribe has three parcels of trust land (one tribal, and two allotted to individual tribal members) located in the upper Big Sandy River Valley approximately 18 miles north of the proposed power plant site. These parcels, which encompass a total of about 700 acres, are approximately 0.5 to 1.5 miles east of the proposed gas pipeline route. Another isolated parcel of Hualapai Reservation land is located north of the Big Sandy River Valley at Valentine, more than 30 miles north of the Project area. The main Hualapai Reservation, which encompasses more than 1,500 square miles, begins about 10 miles north of Valentine and extends to the Colorado River.

The Hualapai Tribe expressed concerns about the potential impacts of the Project on the resources of these reservation lands, particularly potential decreases in surface water and groundwater supplies, as well as degradation of air quality and potential impacts to endangered species such as the Southwestern willow flycatcher. The Hualapai Tribe also expressed concerns about cultural resources throughout their traditional territory, which encompassed the Big Sandy River Valley.

Other tribes also were consulted, including the Yavapai-Prescott Tribe, Yavapai-Apache Nation, Fort Mojave Indian Tribe, Colorado River Indian Tribes, Navajo Nation, and Hopi Tribe. None of these tribes identified any concerns about potential impacts on Indian trust assets.

The assessment of potential impacts considered natural and cultural resources of Hualapai Reservation lands, as applicable, including surface water and groundwater, natural vegetation and wildlife, air quality, and ambient noise levels. Also, potential impacts on current and future uses and economic development of the reservation lands in the Big Sandy Valley were considered (refer to Section 3.0). The modeling for air quality impacts did consider the main Hualapai Reservation bordering the Colorado River to be a Class I area, just as sensitive as the Grand Canyon, and this conservative approach identified no significant impacts. The results of the groundwater modeling indicate that the northern boundary of the deep aquifer that would be the source for the Project water supply is approximately 13 miles south of the closest parcels of the Hualapai

Reservation. Therefore, no significant impacts to the groundwater or surface water supplies of the Hualapai reservation lands are expected. Similarly, no significant impacts to the vegetation or wildlife of the reservation parcels have been identified. The Project is not expected to affect the potential for future development of the reservation parcels.

Although the technical studies concluded there would be no significant impacts on Hualapai Reservation lands, the Hualapai Tribal Council remains unconvinced by the technical models and is reluctant to support the Project unless Caithness can guarantee that there will be no significant impacts on the Tribe's air and water resources over the life of the Project. The air permit would stipulate that air emissions be monitored and a program to monitor groundwater impacts also would be implemented. BLM and Western will continue to have discussions with the Hualapai Tribe about actions needed to protect tribal rights.

Arrangements also were made for the Hualapai Tribe Department of Cultural Resources (2001) to participate in the study of cultural resources and to conduct an ethnographic study to assess how the Project might affect traditional cultural places and resources. The results of this study were considered in preparing this Draft Environmental Impact Statement (EIS) and are being incorporated into the ongoing consultations being conducted in accordance with Section 106 of the National Historic Preservation Act. The Department of Cultural Resources is continuing to participate in additional pre-construction cultural resource surveys and in development and implementation of measures to mitigate any identified adverse effects.

Protection of Tribal Sovereignty and Self-Government—The Project has promoted sovereignty and self-government for the Hualapai Tribe by arranging for the Tribe to fully participate, within a government-to-government relationship, as a cooperating agency in the preparation of this Draft EIS.

Provision of Services—The provision of services to Indian tribes typically is the role of agencies such as Bureau of Indian Affairs and Indian Health Service. The Big Sandy Energy Project has no role in or impacts on provision of such services.